Cook-and-Serve Meals for Bugs

Liver and ground beef are two ingredients in the recipe of a new lab diet for mass-rearing pest-eating insects. ARS scientists are patenting the diet. It can be used to rear about a dozen different insects. These include *Diapetimorpha introita* parasitic wasps and a predator called the spined soldier bug. ARS scientists developed and tested the diet under a cooperative research and development agreement (CRADA) with Predation, Inc., of Alachua, Florida. The scientists are refining the diet. For example, they want soldier bugs raised on the diet to produce more eggs than they do with the diet's current formulation. Under a different CRADA, the scientists are

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The parasitic wasp, *Diapetimorpha introita*, is a biocontrol for fall and beet armyworms.

working with another firm to come up with diet "serving trays." The ARS scientists and Analytical Research Systems, Inc., in Micanopy, Florida, are testing various types of polymer film coatings. The coatings will contain and store thousands of individual servings of the diet. One requirement: Insects must be able to open the containers themselves to get their meals. *Patrick D. Greany, Center for Medical, Agricultural, and Veterinary Entomology, Gainesville, Florida; phone (352) 374-5763, fax (352) 374-5923, e-mail pgreany@nervm.nerdc.ufl.edu*

Hormone Could Make Suckers the Baitfish of Choice

An experimental hormone could make two baitfish species—white suckers and spotted suckers—more popular with aquaculturists. Today, 7-inch-long golden shiners are the staple baitfish for very large sportfish. But they take 2 years to grow to maturity. ARS scientists say white or spotted suckers will reach maturity in 1 year. Speedier production could translate into higher profits for producers. The problem is, sucker fish prefer laying eggs in rivers and other running waters. But the scientists found that giving the fish a dose of a synthetic form of a hormone, human chorionic gonadatropin (HCG), encourages them to spawn—regardless of the setting. That could open the way to pond production. White suckers grow best in cool waters north of Arkansas. They're good bait for striped bass, muskies, black bass, and other large game fish. But white suckers cannot be introduced into states such as Florida, where they are not considered a native. Spotted suckers, a second option, are native to Florida and some other southern states east of the Rocky Mountains. HCG is synthetically produced for medical uses. The U.S. Food and Drug Administration has approved its use in fish only for experimental purposes. FDA would require further studies before considering its approval for use on food or brood fish. *Gerald M. Ludwig, USDA-ARS National Aquaculture Research Center, Stuttgart, Arkansas; phone (870) 673-4483, fax (870) 673-7710.*

New Sensor Is Anti-Smear Campaign for Soil

When planting equipment sows crop seeds such as corn, it rubs against the soil. The rubbing may smear the soil—forming a smooth, dense layer in the furrow. The slick layer slows air and water flow through the soil and restricts shoot and root growth. More pressure from the planter can mean more smearing. There's no effective way to detect how much soil smearing a planter causes, so it's difficult to estimate crop losses. But ARS scientists are developing a fiber optic sensor that could alert farmers to smearing in progress. The grower can then adjust equipment or change planting attachments. The research is part of the emerging high-tech field of precision agriculture, using new technology to help farmers conserve resources while improving their production efficiency. The sensor projects a light beam onto the side of the seed furrow and analyzes reflected light for characteristics that indicate smearing. ARS scientists are looking for partners to develop the sensor technology for the marketplace. *Donald C. Erbach, USDA-ARS National Soil Dynamics Laboratory, Auburn, Alabama; phone (334) 844-4741, fax (334) 887-8597, e-mail derbach@eng.auburn.edu*